UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,529	04/02/2004	Merrit Heminway	2004P88067 US	5787

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EXAMINER
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2125	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
	10/817,529	HEMINWAY ET AL.
Office Action Summary	Examiner	Art Unit
	Alexander J. Kosowski	2125

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>10 July 2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-52,56-72 and 76-81</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) <u>16-40,56-72,77,79 and 80</u> is/are allowed.

6)☒ Claim(s) <u>1-15,41, 43-52,76 and 78</u> is/are rejected.

7)☒ Claim(s) <u>42 and 81</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some * c)☐ None of:

       1.☐ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1)   Claims 1-52, 56-72 and 76-81 are presented for examination in light of the amendment filed 7/10/07.

Allowable Subject Matter

2)   Claims 16-40, 56-72, 77, 79-80 are allowed.

The following is an examiner's statement of reasons for allowance: Referring to claims 16-40, 56-72, 77, 79-80, the claims are allowable for the reasons stated by applicant's representative in the "Remarks" section of the amendments filed 1/3/07 and 7/10/07.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Claim Objections

3)   Claims 42, 81 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 112

4)   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5)   Claim 76 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Referring to claim 76, the preamble of the claim is directed towards a computer readable medium containing a computer readable data structure used in automating a sequence of process flow operations. However, the claim itself is simply a listing of tables containing data. It is not clear how "automating a sequence of process flow operations" is a result created from 3 sets of tables simply containing data.

Claim Rejections - 35 USC § 102

6)   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7)   Claims 41, 43-49, 52, 78 are rejected under 35 U.S.C. 102(b) as being unpatentable by Kline, Jr et al (U.S. Pat 5,499,188).

Referring to (claim 41), Kline teaches a controller for automating a sequence of process flow operations, said controller comprising: an input/output component adapted to communicate with a workstation and process hardware (col. 4 lines 50-67 and col. 5 lines 33-67); a process control program for executing a recipe including a plurality of unit operations (col. 10 lines 6-49), each of said plurality of unit operations describing a process flow step in terms of at least one chemical and/or physical step to be performed (col. 10 lines 1-49 and col. 13 lines 9-13), said process control program receiving said recipe through said input/output component (col. 10 lines 6-49); a hardware control program for monitoring and controlling said process hardware through said input/output component, said process control program communicating with said

hardware control program (col. 8 lines 49-67); and a processing component programmed to

execute said process control program and said hardware control program (col. 5 lines 50-67).

Referring to (claim 43), Kline teaches that said hardware control program is programmed

to execute a process including the steps of: receiving a set of values from said process control

program; sending a set of data to a selected device of said plurality of process hardware, said set

of data corresponding to said set of values (col. 8 lines 49-67), (claim 44) wherein said hardware

control program is programmed to execute a process including the steps of: receiving a set of

data from a selected device of said plurality of process hardware; sending a set of values to said

process control program, said set of data corresponding to said set of values (col. 8 lines 49-67),

(claim 45) wherein said process control program includes a plurality of process objects

representing a plurality of process elements, each of said plurality of process objects including at

least one property and at least one method for manipulating one of said plurality of process

elements (col. 9 lines 46-65), (claim 46) wherein said hardware control program includes a

plurality of hardware objects each representing a hardware device from said plurality of process

hardware, each of said plurality of hardware objects including at least one property and at least

one method for directly monitoring and/or controlling said hardware device (col. 5 lines 50-67),

(claim 47) wherein said process control program includes a plurality of process objects

representing a plurality of process elements and said hardware control program includes a

plurality of hardware objects each representing a hardware device from said plurality of process

hardware, each of said plurality of process objects including at least one property and at least one

method for manipulating one of said plurality of process elements, each of said plurality of

hardware objects including at least one property and at least one method for directly monitoring

and/or controlling said hardware device, said plurality of process objects communicating with

said plurality of hardware objects (col. 5 lines 50-67 and col. 8), (claim 48) wherein said process

control program and said hardware control program execute a process including a step of

correlating one of a plurality of devices to one of a plurality of input/output points, whereby a set

of data is passed between said process control program and said hardware control program, said

process control program dealing with said plurality of devices and said hardware control

program dealing with said plurality of input/output points (col. 5 lines 50-67 and col. 8 lines 49-

67), (claim 49) wherein said process control program passes a set of data to said hardware

control program, said hardware control program executing a set of instructions manipulating said

plurality of process hardware to perform said process flow step defined by said one of said

plurality of unit operations (col. 8 lines 49-67).

Referring to (claim 52), Kline teaches a controller for automating a sequence of process

flow operations, said controller comprising: an input/output component adapted to communicate

with a workstation and process hardware (col. 4 lines 50-67 and col. 5 lines 33-67); and a

process control program for executing a recipe including a plurality of unit operations (col. 10

lines 6-49), each of said plurality of unit operations describing a process flow step in terms of at

least one chemical and/or physical step to be performed (col. 10 lines 1-49 and col. 13 lines 9-

13), said process control program receiving said recipe through said input/output component

(col. 10 lines 6-49), said process control program including a plurality of process objects

representing a plurality of process elements, each of said plurality of objects including at least

one property and at least one method for manipulating one of said plurality of process elements

(col. 10); and a hardware control program for monitoring and controlling said plurality of

process hardware through said input/output component, said hardware control program including a plurality of hardware objects each representing a hardware device from said plurality of process hardware, each of said plurality of objects including at least one property and at least one method for directly monitoring and/or controlling said hardware device (col. 8 lines 49-67 and col. 10), said plurality of process objects communicating with said plurality of hardware objects and a processing component programmed to execute said process control program and said hardware control program (col. 5 lines 50-67).

Referring to claim 78, Kline teaches a method in a computer system for editing a recipe by a user, comprising: presenting to the user a first list of a plurality of available unit operations (col. 9 line 30 through col. 10 line 29); presenting to the user a recipe list of a plurality of selected unit operations defining said recipe (col. 10 lines 29-49); presenting to the user a resource list including a plurality of resources based on said plurality of selected unit operations and allowing the user to add at least one of said plurality of available unit operations to said recipe list (col. 11 line 35 through col. 13 line 14); allowing the user to delete at least one of said plurality of available unit operations from said recipe list and allowing the user to edit the resources for one of said plurality of selected unit operations (col. 9 line 29 through col. 10 line 67, whereby a user of the recipe builder can create custom recipes from multiple resources).

Claim Rejections - 35 USC § 103

8)   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9)   Claims 1-4, 6-7, 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Kline, Jr et al (U.S. Pat 5,499,188), further in view of Safir et al (U.S. Pat 6,994,827).

Referring to (claim 1), Kline teaches an apparatus for automating production by

executing a sequence of process flow operations, said apparatus comprising: a workstation (col.

4 lines 50-67) having a processing component programmed to execute a process including the

steps of: providing a recipe editor for creating and maintaining a recipe and providing operations

control for executing said recipe (col. 10 lines 29-67) and a controller having an input/output

component and a processing component (col. 5 lines 50-67), said controller communicating with

said workstation (col. 5 lines 33-49), said controller processing component programmed to

execute a process (col. 8 lines 49-67) including the steps of: receiving a plurality of unit

operations forming said recipe, each said unit operation describing a chemical process step (col.

10 lines 1-49 and col. 13 lines 9-13), executing said plurality of unit operations (col. 8 lines 49-

67) and process hardware in communication with said input/output component of said controller

(col. 8 lines 20-48). However, Kline does not explicitly teach that said process hardware is

adapted to produce a radiopharmaceutical and includes a reagent delivery system and a reaction

vessel with an associated heating and purging system.

Safir teaches a chemical compounding system which is based off of a recipe and

controlled through a GUI and controller and utilizes reaction vessels and heating and purging

systems in addition to reagent delivery systems to create mixtures of chemicals (columns 7-8 and

28, whereby radiopharmaceuticals are a well known type of chemical mixture).

Therefore, it would have been obvious to one skilled in the art at the time the invention

was made to utilize the system taught by Kline above in combination with the components taught

by Safir to create radiopharmaceuticals since this would allow control over combinations of

multiple reactants, including volume, sequence, and temporal profile (Safir, col. 6 lines 1-5) and

since the use of a GUI and controller interface for such a compounding system would allow a

user to define detailed feed plans for reactions associated with multiple reaction vessels (Safir,

col. 28 lines 20-25).

Referring to (claim 2), Kline teaches that each of said plurality of unit operations

describes a process flow step in terms of the chemical and physical steps to be performed (col. 10

lines 1-49 and col. 13 lines 9-13), (claim 3) that each of said plurality of unit operations calls a

software routine programmed to perform a set of instructions to manipulate said plurality of

process hardware to perform a process flow step (col. 8 lines 49-67), (claim 4) that said

workstation communicates said recipe and at least one command to a process control program

being executed by said controller (col. 8 lines 49-67), (claim 6) wherein said process step of

providing operations control being executed by said workstation processing component includes

the steps of: selecting said recipe for execution from a library, sending said recipe to said

controller, and sending an execute command to said controller (col. 8 lines 49-67), (claim 7)

wherein said step of sending said recipe includes sending said plurality of unit operations to said

controller (col. 8 lines 49-67), (claim 11) wherein said controller processing component includes

a process control program and a hardware control program, said process control program

including a step of communicating with said hardware control program (col. 5), (claim 12)

wherein said controller processing component includes a process control program and a

hardware control program, said hardware control program having a plurality of instructions

executable by the controller, said hardware control program including a step of communicating

with said process control program and a step of communicating with said plurality of process

hardware (col. 5), (claim 13) wherein said controller processing component includes a process

control program and a hardware control program, said process control program having a lookup

table correlating each of said plurality of input/output points to a corresponding device, said

process control program receiving data from one of said plurality of input/output points and said

process control program executing a step to determine said corresponding device (col. 5 and col.

8), (claim 14) and wherein said controller processing component includes a process control

program and a hardware control program, said hardware control program having a lookup table

correlating each of said plurality of devices to each of said input/output points whereby said

hardware control program receives instructions to be communicated to one of said plurality of

devices and said hardware control program executes a step to determine said corresponding

input/output point (col. 5 and col. 8).

10)   Claims 5, 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kline,

further in view of Safir, further in view of. Funk et al (U.S. PGPUB 2005/0187649).

        Referring to claims 5 and 8, Kline and Safir teach the above. However, they do not

explicitly teach communicating a recipe state and at least one device state to a workstation, nor

receiving a stream of data from the controller, said stream also including a recipe state, unit

operation state and device state.

        Funk teaches a monitoring and control apparatus for process flow operations which

utilizes a recipe and allows monitoring of the states of a controller and of process tools

(Paragraphs 0004-0005 and 0034-0036 and 0147-0148).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to monitor data from a controller and operation units including operation state, device state, and recipe state in the invention taught above since this would allow for the control and monitoring of process flows (Funk, Paragraph 0004), and since this would also allow detection of abnormalities and characteristic deterioration of a process (Funk, Paragraph 0005).

Referring to claim 15, see rejection of claims 5 and 8 above.

11)   Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kline, further in view of Safir, further in view of Christian et al (U.S. Pat 6,684,122).

Referring to claims 9-10, Kline and Safir teach the above. However, they do not explicitly teach sending a reset command to said controller before sending said recipe, nor receiving a reset command by the controller and initializing said controller before receiving said unit operations.

Christian teaches a control apparatus for controlling process flows operations which sends instructions for a process controller to reset itself before receipt of new of new instructions (col. 4 lines 17-29 and col. 7 lines 23-30).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to send reset commands to a controller in the invention taught above since a reset would allow operating parameters to be reset to match conditions in various processing chambers (Christian, col. 7 lines 15-30).

12)   Claims 50-51, 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kline,

further in view of Funk.

Referring to claims 50-51, see rejection of claims 5 and 8 above.

Referring to claim 76, Kline teaches a computerized system for controlling process flows,

comprising a list table containing a set of recipe data including a list of at least one recipe and a

recipe table containing a set of unit operation data including a list of a plurality of unit operations

and a unit operation table containing a set of parameters relating to each of said plurality of unit

operations (col. 4 and col. 8 and col. 10). However, Kline does not explicitly teach that said

recipe table contains a set of recipe live data, said recipe live data including a recipe status, a

recipe start time and date, and a recipe finish time and date nor said unit operation table

containing a set of unit operation live data, said unit operation live data including a unit

operation status, a unit operation start time and date, and a unit operation finish time and date.

Funk teaches a monitoring and control apparatus for process flow operations which

utilizes a recipe and allows monitoring of the states of a controller and of process tools

(Paragraphs 0004-0005 and 0034-0036 and 0147-0148), and which receives data including

recipe status and operation status and live data (Paragraphs 00147-00148) and start and finish

times (Paragraph 0044).

Therefore, it would have been obvious to one skilled in the art at the time the invention

was made to utilize the recipe and unit operation tables taught by Funk in the invention taught by

Kline since this would allow for the control and monitoring of process flows (Funk, Paragraph

0004), and since this would also allow detection of abnormalities and characteristic deterioration

of a process (Funk, Paragraph 0005).

Response to Arguments

13)   Regarding arguments directed towards claims 24 and 68, note the indication of allowable subject matter above.

With regard to the 112 rejection of claim 76, applicant argues that the claim "is not merely a collection of data" and that the claim "does not have to explain how a computer would use the claimed data structure". Examiner disagrees, and maintains the 112 2nd rejection as shown above. The claim is rendered indefinite because the claim fails to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Merely stating the contents of a computer readable data structure does not clearly teach the desired invention.

With regard to claims 41 and 52, applicant argues that "Kline fails to disclose communication between a controller and workstations and process hardware through the same input/output component". Examiner maintains the rejection above, and notes that Kline teaches a workstation, input / output components, and process hardware (col. 4 lines 50-67 and col. 5 lines 33-67). All of these devices are connected to a control network, and are therefore able to communicate with each other. Examiner notes that the claim limitations of "an input / output component" are extremely broad and can be interpreted as a system of modules acting as one, which reads upon the claim limitations.

Also with regard to claims 41 and 52, applicant argues with regard to Kline that "the controller executing the recipe does not correspond to the required separate process control program and hardware control program". In response, examiner notes that a controller is capable of running multiple programs in parallel, and therefore a controller as taught by Kline executing control of field devices would utilize multiple control programs.

With regard to claim 78, applicant argues that "Kline discloses no such user addition or deletion or editing of resources from a preexisting recipe...". Firstly, examiner notes there is no specific requirement requiring a "preexisting recipe" as argued. Even though the limitation of such has been added, it has been added to the pre-amble of the claim, and as such does not carry patentable weight. The claim can be broadly interpreted as a method for building a new recipe.

Applicant also argues that there is no reference to selecting from multiple lists nor editing recipes as claimed. Examiner notes that col. 10 lines 49-67 clearly teach an operator interface for interacting with a recipe builder. The data is selected from data bases which contain lists of available data and allow operators to create custom recipes. All of the limitations of claim 78, as maintained in the rejection above, are clearly present, and an operator at a workstation is able to be presented with various data and edit and create a recipe as claimed.

With regard to claim 1, applicant argues that neither reference "discloses the claimed controller". In response, examiner notes the response to arguments presented regarding claim 41 above, and therefore maintains the rejection of claim 1.

Finally, with regard to the art rejection of claim 76, applicant has argued the outstanding 112 rejection, but not specifically addressed the outstanding art rejection. Therefore, the rejection of claim 76 is maintained, as shown above.

Conclusion

14)   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO
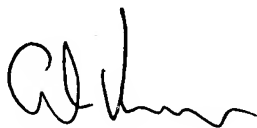
MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15)   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander J Kosowski whose telephone number is 571-272-3744. The examiner can normally be reached on Monday through Friday, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. In addition, the examiner's RightFAX number is 571-273-3744.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2100.

Alexander J. Kosowski
Primary Examiner
Art Unit 2125